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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,487	03/07/2002	Masaki Tsunekane	8008-1004	9464

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EXAMINER

JACKSON, CORNELIUS H

ART UNIT PAPER NUMBER

2828

DATE MAILED: 07/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

10/091,487

Applicant(s)

TSUNEKANE ET AL.

Examiner

Cornelius H. Jackson

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-- *Th MAILING DATE of this communication appears on the cover sheet with th correspondenc address --*  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 March 2002 .
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_ .
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_ .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_ .

## **DETAILED ACTION**

### ***Acknowledgment***

1. Acknowledgment is made that applicant's Amendment, filed on 07 March 2002, has been entered.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claims 1-31 are rejected since it is unclear as to what is "at a position inside a laser resonator", whether "the detection unit" or "the quantity of fluorescence

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generated". Also it is unclear as to the position of the optical axis, since all the fluorescence generated maybe considered as a laser oscillation light.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 6, 17-20, 22 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Akiyama et al. (JP 2000-269576). Regarding claim 1, Akiyama disclose a laser-diode-pumped solid-state laser apparatus **Drawings 1 and 2** comprising: a solid-state laser medium **1**, which absorbs a pumping light to generate or amplify light of a predetermined wavelength; a laser diode light source **2-7**, which generates said pumping light and introduces the generated pumping light into the laser medium **1** directly or via an optical device; and a fluorescence detection unit **30** for detecting a quantity of fluorescence generated from the solid-state laser medium **1 wherein the quantity of fluorescence generated** at a position inside a laser resonator composing the solid-state laser apparatus, the position being near an optical axis of a laser oscillation light generated in the resonator and not blocking the optical axis, **since the output laser beam passes through mirror 28, see [0018]-[0041].**

Regarding claim 2, Akiyama disclose wherein said pumping light is introduced from a direction approximately perpendicular to the optical axis of said laser oscillation light, **see Drawing 1 and 2.**

Regarding claim 3, Akiyama disclose wherein said fluorescence detection unit comprises: optical unit disposed in a position near said optical axis of the laser oscillation light and not blocking the optical axis; and a photo-detector **30** that detects said fluorescence introduced by said optical unit.

Regarding claim 4, Akiyama disclose wherein said optical unit includes a mirror **28** for reflecting said fluorescence emitted from the solid-state laser medium **1**, and said fluorescence reflected by the mirror **28** propagates in space and is made incident into said photo-detector **30** disposed in a predetermined position.

Regarding claim 6, Akiyama disclose wherein said optical unit comprises a transparent medium **29** in the wavelength of said fluorescence, and said fluorescence made incident from one end of the medium propagates through the medium and is made incident into said photo-detector **30** disposed at the other end.

Regarding claim 17, Akiyama disclose wherein said laser diode light source includes: a plurality of laser diode devices; a power source **17** that: drives a plurality of said laser diode devices **2-7** in a predetermined number of groups; and controller **31** for controlling the drive current **22-27** of said power source **17**, wherein said controller **31** adjusts the drive current **22-27** for each of said groups in accordance with the intensity of said fluorescence detected by said photo-detector **30**.

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Regarding claims 18-20, 22 and 31, the method of a device is not germane to the issue of patentability of the device itself. Therefore, the rejection used against the device, stands for the method as well.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama et al. (JP 2000-269576) in view of Barnes (5128949). Akiyama et al. teach a laser-diode-pumped solid-state laser apparatus **Drawings 1 and 2** comprising: a solid-state laser medium **1**, which absorbs a pumping light to generate or amplify light of a predetermined wavelength; a laser diode light source **2-7**, which generates said pumping light and introduces the generated pumping light into the laser medium **1** directly or via an optical device; and a fluorescence detection unit **30** for detecting a quantity of fluorescence generated from the solid-state laser medium **1**, **see [0018]-[0041]**. Akiyama et al. fails to teach the position of the fluorescence unit being inside a laser resonator composing the solid-state laser apparatus, near an optical axis of a laser oscillation light generated in the resonator and not blocking the optical axis. Barnes teach the position of the fluorescence unit being inside a laser resonator

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composing the solid-state laser apparatus, near an optical axis of a laser oscillation light generated in the resonator and not blocking the optical axis. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the monitoring system of Barnes to the laser apparatus of Akiyama in order to regulate the loss level in relation to the pump and the pulse evolution time interval may be regulated more accurately, **see col. 2, lines 15-43**. Also, to avoid loss in the power of the output beam due to reflection, refraction and heating of optics used to remove a portion of the beam being outputted for monitoring.

Regarding claim 2, Akiyama teach wherein said pumping light is introduced from a direction approximately perpendicular to the optical axis of said laser oscillation light, **see Drawings 1 and 2**.

Regarding claim 3, Barnes teach wherein said fluorescence detection unit comprises: optical unit disposed in a position near said optical axis of the laser oscillation light and not blocking the optical axis; and a photo-detector **11** that detects said fluorescence introduced by said optical unit.

Regarding claim 4, Barnes teach wherein said optical unit includes a mirror **32'** for reflecting said fluorescence emitted from the solid-state laser medium **13**, and said fluorescence reflected by the mirror **32'** propagates in space and is made incident into said photo-detector **11** disposed in a predetermined position. Also the use of a mirror to direct the output to the detector it is considered as a matter of design choice, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design

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choice[*In re Leshin*, 125 USPQ 416] and equivalent to placing the photo-detector in the path of the fluorescence.

Regarding claim 5, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 6, Barnes disclose wherein said optical unit comprises a transparent medium **17** in the wavelength of said fluorescence, and said fluorescence made incident from one end of the medium propagates through the medium and is made incident into said photo-detector **11** disposed at the other end.

Regarding claims 7-12, it has been held "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 13, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 14 and 15, Barnes teach wherein said transparent medium **17** is made up of any of a material that selectively attenuates light having the wavelength of said pumping light and a material that selectively transmits a wavelength of a fluorescence emission line spectrum that is not used in laser oscillation and all other stated limitations, **see col. 3, lines 31-40.**



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Regarding claim 16, it has been held “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 17, Akiyama disclose wherein said laser diode light source includes: a plurality of laser diode devices; a power source **17** that: drives a plurality of said laser diode devices **2-7** in a predetermined number of groups; and controller **31** for controlling the drive current **22-27** of said power source **17**, wherein said controller **31** adjusts the drive current **22-27** for each of said groups in accordance with the intensity of said fluorescence detected by said photo-detector **30**.

Regarding claims 18- 31, the method of a device is not germane to the issue of patentability of the device itself. Therefore, the rejection used against the device, stands for the method as well.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wakata et al. (5130998) disclose a similar invention, **see Fig. 13a**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (703) 306-5981. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.



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June 30, 2003



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